

The opinion in support of the decision being entered today  
is *not* binding precedent of the Board

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* HIROSHI KODAMA  
and TATSUO SATO

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Appeal 2007-4013  
Application 09/768,512  
Technology Center 1700

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Decided: September 27, 2007

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Before EDWARD C. KIMLIN, BRADLEY R. GARRIS, and  
CHARLES F. WARREN, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

DECISION ON APPEAL

Applicants appeal to the Board from the decision of the Primary Examiner finally rejecting claims 1, 2, 6 through 8, and 10 through 14 in the Office Action mailed October 19, 2005. 35 U.S.C. §§ 6 and 134(a) (2002); 37 C.F.R. § 41.31(a) (2005).

We affirm the decision of the Primary Examiner.

Claim 1 illustrates Appellants' invention of a metallic carrier for a catalytic converter, and is representative of the claims on appeal:

1. A metallic carrier for a catalytic converter comprising:
  - a corrugated sheet made of metal;
  - a flat sheet made of metal;
  - a core formed by superposing the corrugated sheet and flat sheet one on another and by rolling the corrugated sheet and the flat sheet in multiple times;
  - an unmelted brazing foil material disposed around an outer periphery of an exhaust gas outlet side of the core; and
  - a metallic outer cylinder into which an assembly including the core and the unmelted brazing foil material is press-fitted, the metallic outer cylinder subjected to heat treatment to diffusionally join the corrugated sheet and flat sheet, and join an inner periphery of the metallic outer cylinder and an outer periphery of the core by the unmelted brazing foil material,
  - wherein a solder-rising preventing groove is defined over an entire circumference of the inner periphery of the outer cylinder at a position located on an exhaust gas inlet side of an area for joining the core,
  - wherein the unmelted brazing foil material is not disposed in the solder-rising preventing groove, and
  - wherein the solder-rising preventing groove prevents melted brazing foil material, melted by the heat treatment, from flowing toward the exhaust gas inlet side of the core.

The Examiner relies on the evidence in these references:

Nonnenmann	US 4,282,186	Aug. 4, 1981
Usui (Usui '774)	US 4,948,774	Aug. 14, 1990
Usui (Usui '611)	US 5,026,611	Jun. 25, 1991
Shimada <sup>1</sup>	JP 8-141413 A	Jun. 4, 1996

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<sup>1</sup> We consider the English translation of Shimada prepared for the USPTO by the McElroy Translation Company (PTO 07-4724 June 2007).

Appellants request review of the following grounds of rejection advanced on appeal (Br. 8):

claims 1, 2, 6 through 8, and 10 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement (Answer 3);  
claims 1, 2, 6 through 8, and 10 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention (*id.* 4); and  
claims 1, 2, 6 through 8, and 10 under 35 U.S.C. § 103(a) as being unpatentable over Usui '774 or Usui '611 alone or in view of Shimada and Nonnenmann (*id.* 5).

Appellants argue the claims in each ground of rejection as a group. Br. 9, 11, and 15. Thus, we decide this appeal based on claim 1. 37 C.F.R. § 41.37(c)(1)(vii) (2005).

The issues in this appeal are whether the Examiner has carried the burden of establishing a *prima facie* case in each of the grounds of rejection advanced on appeal.

The issues in this appeal entail the interpretation of the claims. We interpret independent claim 1 by giving the terms thereof the broadest reasonable interpretation in their ordinary usage in context as they would be understood by one of ordinary skill in the art, in light of the written description in the Specification unless another meaning is intended by Appellants as established therein, and without reading into the claim any disclosed limitation or particular embodiment. *See, e.g., In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364, 70 USPQ2d 1827, 1830 (Fed. Cir. 2004); *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

Claim 1, couched in product-by-process format, is a product claim in which the encompassed metallic carrier is defined by the process by which it is made, and the structural limitations thus conferred on the product by the process must be given weight. *See, e.g., In re Thorpe*, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985). The product comprises that formed by at least the process steps of, among other things, subjecting the assembly of the core press-fitted into the cylinder to any manner of heat treatment to diffuse, that is, melt, the brazing foil disposed around the periphery at any point on the exhaust gas outlet side of the core. There is no limitation on the amount of brazing material in the brazing foil. The thus diffused molten brazing material of the foil cools, joining the core components together and the outer periphery of the core to the inner periphery of the cylinder. The process has the limitation that the cylinder must have a circumferential “solder-rising preventing groove” on the inner periphery at any position on the exhaust gas inlet side thereof. The “solder-rising preventing groove” is not dimensionally defined but must be capable of preventing the diffusing molten brazing material on the exhaust gas outlet side from diffusing toward the exhaust gas inlet side of the core, that is, the further diffusion of the molten brazing material is prevented and the molten brazing material which reaches the groove is retained therein. The unmelted brazing foil is not disposed in the “solder-rising preventing groove” when it is disposed at any point on the exhaust gas outlet side of the core prior to the heat treatment. Thus, the unmelted brazing foil is disposed in any or all of the area of the core/cylinder interface between the exhaust gas outlet side of the assembly and immediately before the “solder-rising preventing groove.”

Thus, the specified process steps produce at least a metallic carrier in which the components of the core as well as the core and the cylinder are joined together upon cooling of the diffused molten brazing material, wherein the diffused brazing material extends along the peripheries of the core and cylinder from about the exhaust gas outlet toward the exhaust gas inlet, but no further in direction of the exhaust gas inlet than the “solder-rising preventing groove,” and the molten brazing material retained in the groove solidifies to form a contact point between the core and the cylinder.

The transitional term “comprising” opens the claim to encompass carriers with other structural features, including one or more additional “solder-rising groove” as well as other grooves or recesses of any dimension which are produced by additional process steps and conditions. *See, e.g., KCI Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351, 1356, 55 USPQ2d 1835, 1839-40 (Fed. Cir. 2000); *Vehicular Technologies Corp. v. Titan Wheel Int’l, Inc.*, 212 F.3d 1377, 1383, 54 USPQ2d 1841, 1845 (Fed. Cir. 2000); *In re Baxter*, 656 F.2d 679, 686-87, 210 USPQ 795, 802-03 (CCPA 1981) (“As long as one of the monomers in the reaction is propylene, any other monomer may be present, because the term ‘comprises’ permits the *inclusion* of other steps, elements, or materials.”). The thus encompassed carriers which, in addition to the specified area of brazing material contact between the core and the cylinder, can have an area of brazing material over any or all of the peripheries of the core and the cylinder between the specified “solder-rising preventing groove” and the exhaust gas inlet, as well as zones of solder between two “solder-rising preventing groove.” *See, e.g.,* Specification 6-9 and Figs. 2 and 3. Any of the areas having

brazing foil can include groves and recesses in the cylinder to assist the diffusion of the molten brazing material solder, wherein any manner of brazing material can optionally fill the grooves and recesses and otherwise be present on the peripheries of the core and/or the cylinder.

In considering the grounds of rejection under §§ 112, first paragraph, written description requirement, and second paragraph, we agree with Appellants' arguments that the claim limitation "wherein the unmelted brazing foil material is not disposed in the solder-rising preventing groove" is definite and the written description establishes Appellants were in possession of the claimed invention encompassed by claim 1 at the time the claimed invention was filed. We are reinforced in our view by the position of unmelted brazing foil 7 relative to the position(s) of the "solder-rising preventing groove" 19 and 25, 27 in Figs. 2 and 3, and the area of diffusing solder 7-1 in Figs 2 and 3. Specification 6-9.

Accordingly, contrary to the Examiner's position (Answer 3-4 and 8-9), one of ordinary skill in the art would not find the phrase "wherein the unmelted brazing foil material is not disposed in the solder-rising preventing groove" indefinite, *see, e.g., In re Warmerdam*, 33 F.3d 1354, 1361, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994); *In re Moore*, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971), and would recognize Appellants were in possession of the claimed inventions encompassed by the claims at the time the Application was filed. *See, e.g., Alton*, 76 F.3d 1168, at 1175-76, 37 USPQ2d at 1581, 1583-584 (Fed. Cir. 1996) (citing *In re Wertheim*, 541 F.2d 257, 262-64, 191 USPQ 90, 96-97 (CCPA 1976)).

In the absence of a prima facie case of non-compliance, we reverse the grounds of rejection under 35 U.S.C. § 112, first paragraph, written description requirement, and second paragraph.

Turning now to the ground of rejection under § 103(a), we find Usui '774 would have disclosed to one of ordinary skill in this art a carrier in which core 2 and casing, that is, cylinder, 6 is brazed together by molten brazing material retained in grooves or recesses 7 as well as that applied at the opposite ends of casing 6, wherein the recesses 7 are formed on the inner wall of casing 6 except for the marginal portions contiguous to the opposite opening ends. Usui '774 col. 6, ll. 1-26. In this manner, the components of core 2 are brazed together and core 2 is brazed to casing 6 along the peripheral surfaces of the core and casing. *Id.* We find Usui '611 would have disclosed to one of ordinary skill in the art a carrier in which fine recesses 7 in casing, that is, cylinder, 6 serve to facilitate distribution of molten brazing material over the peripheral surfaces of core 2 and casing 6, wherein unmelted brazing material can be inserted into recesses 7 and/or applied to the opposite open ends of casing 6 at the area of contact with core 2. Usui '611 col. 6, ll. 4-41. In this manner, the components of core 2 are brazed together and core 2 is brazed to casing 6 along the peripheral surfaces of the core and casing. *Id.*

A discussion of Shimada and Nonnenmann is not necessary to our decision.

We determine the combined teachings of the Usui references, the scope of which we determined above, provide convincing evidence supporting the Examiner's case that the claimed metallic carrier

encompassed by claim 1, as we interpreted this claim above, would have been prima facie obviousness of to one of ordinary skill in the metallic carrier arts familiar with the methods of joining the core and cylinder by brazing to form the carrier. This person would have recognized that the carriers of each Usui reference contain contact points between peripheries of the core and the cylinder formed from molten brazing material present in the recesses in the cylinder as well as from molten brazing material in areas outside of the recesses. Indeed, the claimed carrier encompassed by claim 1 has a point of contact between the core and the cylinder formed from molten brazing material in the “solder-rising preventing groove,” and further encompasses carriers that are brazed along the periphery surfaces of the core and cylinder on either side of recesses and/or grooves which retains molten brazing material.

Accordingly, prima facie the claimed carrier products encompassed by claim 1 are at least substantially identical to the carrier products disclosed by the Usui references, shifting the burden to Appellants to present effective argument or evidence patentably distinguishing the claimed carriers over those of the references even though the ground of rejection is under § 103(a). *See, e.g., In re Best*, 562 F.2d 1252, 1254-56, 195 USPQ 430, 432-34 (CCPA 1977).<sup>2</sup> The Examiner bears a lesser burden

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<sup>2</sup> Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. *See In re Ludtke*, [441 F.2d 660, 169 USPQ 563 (CCPA 1971)]. Whether the rejection is based on “inherency” under 35 USC



of proof to establish a prima facie case of obviousness with product-by-process claims. *See, e.g., In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980); *In re Fessman*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974).

We are of the opinion Appellants' contentions do not successfully carry their burden of rebutting the Examiner's prima facie case. We cannot agree with Appellants that the limitation "wherein the unmelted brazing foil material is not disposed in the solder-rising preventing groove" in claim 1 distinguishes the claimed carriers over those disclosed by the Usui references. Br., e.g., 11-12. We interpreted claim 1 above to encompass carriers in which molten brazing material diffusing into the "solder-rising preventing groove" forms a contact at that point along the peripheries of the core and cylinder even though the groove did not contain unmelted brazing foil material prior to heat treatment of the brazing foil containing core/cylinder assembly. We further interpreted claim 1 to include carriers which have contact points along the peripheries of the core and cylinder on both ends of the carrier, as do the carriers of both Usui references. *See* Br. 13-14; Reply Br. 4-5.

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of obviousness found in the

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102, on "prima facie obviousness" under 35 USC 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products. [Footnote and citation omitted.]

*Best*, 562 F.2d at 1255, 195 USPQ at 433-34.

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combined teachings of Usui '774, Usui '611, Shimada and Nonnenmann with Appellants' countervailing evidence of and argument for nonobviousness and conclude that the claimed invention encompassed by appealed claims 1, 2, 6 through 8, and 10 would have been obvious as a matter of law under 35 U.S.C. § 103(a).

The Primary Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED

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